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## Foreword

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## 1 Scope

The present document lists the 3GPP specific Diameter protocol codes, including the AVP codes and Experimental result codes.

This document lists also the application identifiers assigned to 3GPP specific Diameter applications by IANA and the Diameter command code range which is assigned to 3GPP by IANA.

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

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protocol".

• For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx interfaces; Signalling flows and message contents".  [2] 3GPP TS 29.229: "Cx and Dx interfaces based on the Diameter protocol; Protocol details".  [3] 3GPP TS 29.328: "IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents".  [4] 3GPP TS 29.329: "Sh Interface based on the Diameter protocol; Protocol details".  [5] 3GPP TS 32.299 "3GPP Diameter charging application".  [6] 3GPP TS 29.234: "3GPP System to WLAN Interworking; Stage 3 Description".  [7] 3GPP TS 29.109: "Generic Authentication Architecture (GAA); Zh and Zn Interfaces based on the Diameter protocol; Protocol details".  [8] 3GPP TS 29.209: "Technical Specification Group Core Network; Policy control over Gq interface".  [9] IETF RFC 3588: "Diameter Base Protocol".  [10] IETF RFC 3589: "Diameter Command Codes for Third Generation Partnership Project (3GPP) Release 5".  [11] IANA"s Enterprise-Numbers: <a href="http://www.iana.org/assignments/enterprise-numbers">http://www.iana.org/assignments/enterprise-numbers</a> [12] IANA"s AAA parameters register: <a href="ftp://ftp.iana.org/assignments/aaa-parameters/">ftp://ftp.iana.org/assignments/aaa-parameters/</a> [13] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".  [14] 3GPP TS 32.296: "Telecommunication management; Online Charging System (OCS): Applications and interfaces;".  [15] 3GPP TS 29.210: "Charging rule provisioning over Gx interface".		
[3] 3GPP TS 29.328: " IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents".  [4] 3GPP TS 29.329: " Sh Interface based on the Diameter protocol; Protocol details".  [5] 3GPP TS 32.299 "3GPP Diameter charging application".  [6] 3GPP TS 29.234: "3GPP System to WLAN Interworking; Stage 3 Description".  [7] 3GPP TS 29.109: " Generic Authentication Architecture (GAA); Zh and Zn Interfaces based on the Diameter protocol; Protocol details".  [8] 3GPP TS 29.209: " Technical Specification Group Core Network; Policy control over Gq interface".  [9] IETF RFC 3588: "Diameter Base Protocol".  [10] IETF RFC 3589: "Diameter Command Codes for Third Generation Partnership Project (3GPP) Release 5".  [11] IANA"s Enterprise-Numbers: <a href="http://www.iana.org/assignments/enterprise-numbers">http://www.iana.org/assignments/enterprise-numbers</a> [12] IANA"s AAA parameters register: <a href="http://ftp.iana.org/assignments/ena-parameters/">http://ftp.iana.org/assignments/ena-parameters/</a> [13] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".  [14] 3GPP TS 32.296: "Telecommunication management; Online Charging System (OCS): Applications and interfaces;".  [15] 3GPP TS 29.210: " Charging rule provisioning over Gx interface".	[1]	•
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[13] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".  [14] 3GPP TS 32.296: "Telecommunication management; Online Charging System (OCS): Applications and interfaces;".  [15] 3GPP TS 29.210: " Charging rule provisioning over Gx interface".	[11]	IANA"s Enterprise-Numbers: <a href="http://www.iana.org/assignments/enterprise-numbers">http://www.iana.org/assignments/enterprise-numbers</a>
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Applications and interfaces;".  [15] 3GPP TS 29.210: " Charging rule provisioning over Gx interface".	[13]	
	[14]	
[16] 3GPP TS 20 140: "Multimedia Messaging Service (MMS): MM10 interface based on Diameter	[15]	3GPP TS 29.210: " Charging rule provisioning over Gx interface".
[10] 3011 13.29.140. Multimedia Messaging Service (MMS), MM10 interface based on Diameter	[16]	3GPP TS 29.140: "Multimedia Messaging Service (MMS); MM10 interface based on Diameter

[17] 3GPP TS 29.211: "Rx Interface and Rx/Gx signalling flows".

## 3 Definitions and abbreviations

#### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**3GPP specific:** A definition which is used in conjunction with the 3GPP"s vendor identifier.

#### 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AVP Attribute-Value-Pair CR Change Request

IANA Internet Assigned Numbers Authority
IETF Internet Engineering Task Force

LS Liaison Statement

## 4 Application identifiers

The Diameter applications are identified with the application identifiers as specified in the RFC 3588 [9]. There are two kind of applications: IETF standards track applications and vendor specific applications. All application identifiers are assigned by IANA [12]. This chapter lists the application identifiers asigned by IANA to all 3GPP Diameter applications.

The application identifiers are transferred in Diameter command"s header in the Application-ID field.

## 4.1 3GPP specific application identifiers

The 3GPP specific application identifiers allocated by IANA are listed in the following table.

Table 4.1: 3GPP specific application identifiers

Application identifier	Application	3GPP TS
16777216	3GPP Cx/Px	29.228 [1] and 29.229 [2]
16777217	3GPP Sh/Ph	29.328 [3] and 29.329 [4]
16777218	3GPP Re	32.296 [14]
16777219	3GPP Wx	29.234 [6]
16777220	3GPP Zn	29.109 [7]
16777221	3GPP Zh	29.109 [7]
16777222	3GPP Gq	29.209 [8]
16777223	3GPP Gmb	29.061 [13]
16777224	3GPP Gx	29.210 [15]
16777225	3GPP Gx over Gy	29.210 [15]
16777226	3GPP MM10	29.140 [16]
16777229	3GPP Rx	29.211 [17]
16777230	3GPP Pr	29.234 [6]

## 5 Command codes

The command codes are used for communicating the command associated with the Diameter message. The command code is carried in the Diameter header's Command-Code field. The command codes can be divided into standard command codes allocated by IANA and experimental command codes for testing purposes only.

#### 5.1 Command codes allocated for 3GPP

Based on the IETF RFC 3589 [10] the IANA has allocated a standard command code range 300 - 313 for 3GPP. The command codes are presented in the following table.

Table 5.1/1: Command codes allocated for 3GPP

Command code	Command name	Abbreviation	Specified in 3GPP TS		
300	User-Authorization-Request/-Answer	UAR/UAA			
301	Server-Assignment-Request/-Answer	SAR/SAA			
302	Location-Info-Request/-Answer	LIR/LIA			
303	Multimedia-Auth-Request/-Answer	MAR/MAA	29.229 [2]		
304	Registration-Termination-Request/-	RTR/RTA			
	Answer				
305	Push-Profile-Request/-Answer	PPR/PPA			
306	User-Data-Request/-Answer	UDR/UDA			
307	Profile-Update-Request/-Answer	PUR/PUA	29.329 [4]		
308	Subscribe-Notifications-Request/-Answer	SNR/SNA	29.329 [4]		
309	Push-Notification-Request/-Answer	PNR/PNA			
310	Boostrapping-Info-Request/Answer	BIR/BIA	29.109 [7]		
311	Message-Process-Request/Answer	MPR/MPA	29.140 [16]		

Editors note: The following command codes have been allocated to 3GPP, but they have not been used yet.

Table 5.1/2: Command codes allocated for 3GPP.

312		
313		_

## 6 Vendor identifier

The vendor identifier (also known as Enterprise number) indicates the vendor specific attributes, result codes and application identifiers in Diameter commands. The vendor identifier is used in the Vendor-ID field of the AVP header and in the Vendor-Id AVP. The Vendor-Id AVP is used to identify the vendor in the Vendor-Specific-Application-Id and Experimental-Result-Code grouped AVPs.

#### 6.1 3GPP"s vendor identifier

The IANA has allocated a vendor identifier value 10415 for 3GPP [11].

## 7 Attribute-Value-Pair codes

The AVP codes are used together with the vendor identifier to identify each attribute uniquely. There are multiple AVP namespaces. The IETF IANA namespace, that is, the AVPs with vendor identifier zero or without vendor identifier, is controlled by IANA. Each vendor controls the AVP codes within their AVP namespaces.

## 7.1 3GPP specific AVP codes

The 3GPP specific AVPs have the Vendor-Specific bit ('V' bit) set in the AVP header and they carry the 3GPP"s vendor identifier in the Vendor-ID field of the AVP header. The 3GPP specific AVP codes are presented in the following table.

Table 7.1: 3GPP specific AVP codes

AVP Code	Attribute Name	Data Type	Specified in the 3GPP TS
100	3GPP-WLAN-APN-Id		
Note: The res	at of the AVP codes from 1 to 255 are reserved for backw	ards compatibility v	with 3GPP RADIUS Vendor
	outes (See also TS 29.061 [13])	, ,	
	P codes from 256 to 299 are reserved for future use.		
300	Authentication-Method		
301	Authentication-Information-SIM		
302	Authorization -Information-SIM		
303	WLAN-User-Data		
304	Charging-Data		
305	WLAN-Access		
306	WLAN- 3GPP-IP-Access		
307	APN-Authorized		
308	unassigned		
309	APN-Barring-Type		29.234 [6]
310	WLAN-Direct-IP-Access		1
311	Session-Request-Type		
312	Routing-Policy		
313	Max-Requested-Bandwidth		
314	Charging-Characteristics		
315	Charging-Nodes		
316	Primary-OCS-Charging-Function-Name		
317	Secondary-OCS-Charging-Function-Name		
318	3GPP-AAA-Server-Name		
319	Maximum-Number-Accesses	Unsigned32	
Note: The AV	P codes from 320 to 399 are reserved for TS 29.234		
			29.109 [7]
Note: The AV	P codes from 400 to 499 are reserved for TS 29.109		
500	Abort-Cause	Enumerated	
501	Access-Network-Charging-Address	Address	
502	Access-Network-Charging-Identifier	Grouped	
503	Access-Network-Charging-Identifier-Value	OctetString	
504	AF-Application-Identifier	OctetString	
505	AF-Charging-Identifier	OctetString	
506	Authorization-Token	OctetString	
507	Flow-Description	IPFilterRule	
508	Flow-Grouping	Grouped	
509	Flow-Number	Unsigned32	
510	Flows	Grouped	
511	Flow-Status	Enumerated	29.209 [8],
512	Flow-Usage	Enumerated	29.211 [17]
513	Specific-Action	Enumerated	]
514	Max-Requested-Bandwidth	Unsigned32	
515	Max-Requested-Bandwidth-DL	Unsigned32	
516	Max-Requested-Bandwidth-UL	Unsigned32	
517	Media-Component-Description	Grouped	
518	Media-Component-Number	Unsigned32	
519	Media-Sub-Component AVP	Grouped	]
520	Media-Type	Enumerated	
521	RR-Bandwidth	Unsigned32	
522	RS-Bandwidth	Unsigned32	
523	SIP-Forking-Indication	Enumerated	
Note: The	AVP codes from 524 to 599 are reserved for TS 29.209	and TS 29.211	
600	Visited-Network-Identifier	OctetString	29.229 [2]
601	Public-Identity	UTF8String	]
602	Server-Name	UTF8String	
603	Server-Capabilities	Grouped	]

004	Manadatana Osmak ilita	Llasiana aloo	
604 605	Mandatory-Capability Optional-Capability	Unsigned32 Unsigned32	
606	User-Data	OctetString	
607	SIP-Number-Auth-Items	Unsigned32	
608	SIP-Authentication-Scheme	UTF8String	
609	SIP-Authenticate	OctetString	
610	SIP-Authorization	OctetString	
611	SIP-Authentication-Context	OctetString	
612	SIP-Auth-Data-Item	Grouped	29.229 [2], 29.234 [6]
613	SIP-Item-Number	Unsigned32	[_], [_0]
614	Server-Assignment-Type	Enumerated	
615	Deregistration-Reason	Grouped	
616	Reason-Code	Enumerated	
617	Reason-Info	UTF8String	
618	Charging-Information	Grouped	
619	Primary-Event-Charging-Function-Name	DiameterURI	
620	Secondary-Event-Charging-Function-Name	DiameterURI	
621	Primary-Charging-Collection-Function-Name	DiameterURI	
622	Secondary-Charging-Collection-Function-Name	DiameterURI	29.229 [2]
623	User-Authorization-Type	Enumerated	
624	User-Data-Already-Available	Enumerated	
625	Confidentiality-Key	OctetString	
626	Integrity-Key	OctetString	
627	User-Data-Request-Type	Enumerated	
628	Supported-Features	Grouped	
629	Feature-List-ID	Unsigned32	
630	Feature-List	Unsigned32	
631	Supported-Applications	Grouped	
632	Associated-Identities	Grouped	
	e AVP codes from 633 to 699 are reserved for TS 29.229		
700	User-Identity	Grouped	
701	MSISDN	OctetString	
702	User-Data	OctetString	
703	Data-Reference	Enumerated	20 220 [4]
704	Service-Indication	OctetString	29.329 [4]
705 706	Subs-Req-Type	Enumerated	
707	Requested-Domain Current-Location	Enumerated Enumerated	
707	Identity-Set	Enumerated	
	e AVP codes from 709 to 799 are reserved for TS 29.329.	Litameratea	
Note: Inc	7741 60463 110111 703 10733 416 16361464 101 10 23.023.		32.299 [5]
Note: The	e AVP codes from 800 to 899 are reserved for TS 32.299		02.200 [0]
900	TMGI	OctectString	
901	Required-MBMS-Bearer-Capabilities	UTF8String	
902	MBMS-StartStop-Indication	Enumerated	
903	MBMS-Service-Area	OctectString	
904	MBMS-Session-Duration	Unsigned32	
905	Alternative-APN	UTF8String	
906	MBMS-Service-Type	Enumerated	29.061 [13]
907	MBMS-2G-3G-Indicator	Enumerated	- <del>-</del>
908	MBMS-Session-Identity	OctetString	
909	RAI	UTF8String	
910	Additional-MBMS-Trace-Info	OctetString	
911	MBMS-Time-To-Data-Transfer	Unsigned32	
912	MBMS-Session-Identity-Repetition-Number	Unsigned32	
	AVP codes from 907 to 999 are reserved for TS 29.061		
1000	Bearer-Usage	Enumerated	29.210 [15]
1001	Charging-Rule-Install	Grouped	
1002	Charging-Rule-Remove	Grouped	
1003	Charging-Rule-Definition	Grouped	
1004	Charging-Rule-Base-Name	OctetString	
1005	Charging-Rule-Name	OctetString	
1006	Event-Trigger	Enumerated	
1007	Metering-Method	Enumerated	
1008	Offline	Enumerated	

1010   Precedence		T	T						
1011   Reporting-Level	1009								
1012   TFT-Filter   IPFilterRule	1010	Precedence							
1013   TFT-Packet-Filter-Information   Enumerated	1011	Reporting-Level	Enumerated						
Note: The AVP codes from 1015 to 1099 are reserved for TS 29.210	1012								
Note: The AVP codes from 1015 to 1099 are reserved for TS 29.210           1100         Served-User-Identity         Groupe           1101         VASP-ID         UTF8Str           1102         VAS-ID         UTF8Str           1103         Trigger-Event         Enumer           1104         Sender-Address         UTF8Str           1105         Initial-Recipient-Address         Groupe           1106         Result-Recipient-Address         Groupe           1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1111         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Text         UTF8Str           1118         Status-Text         UTF8Str           1118         Status-Text         UTF8Str									
1100   Served-User-Identity   Groupe	1014	ToS-Traffic-Class							
1101	Note: The	e AVP codes from 1015 to 1099 are reserved for TS 29.2	10						
1102    VAS-ID	1100	Served-User-Identity	Groupe						
1103         Trigger-Event         Enumer           1104         Sender-Address         UTF8Str           1105         Initial-Recipient-Address         Groupe           1106         Result-Recipient-Address         Groupe           1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1101	VASP-ID	UTF8Str						
1104         Sender-Address         UTF8Str           1105         Initial-Recipient-Address         Groupe           1106         Result-Recipient-Address         Groupe           1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1102	VAS-ID	UTF8Str						
1105         Initial-Recipient-Address         Groupe           1106         Result-Recipient-Address         Groupe           1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1103	Trigger-Event	Enumer						
1106         Result-Recipient-Address         Groupe           1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1104	Sender-Address	UTF8Str						
1107         Sequence-Number         Unsigne           1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1105	Initial-Recipient-Address	Groupe						
1108         Recipient-Address         UTF8Str           1109         Routeing-Address         UTF8Str           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1106	Result-Recipient-Address	Groupe						
1109         Routeing-Address         UTF8Str         29.140 [16]           1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1107	1107 Sequence-Number Unsigne							
1110         Originating-Interface         Enumer           1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1108	1108 Recipient-Address UTF8Str							
1111         Delivery-Report         Enumer           1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1109	1109 Routeing-Address UTF8Str		29.140 [16]					
1112         Read-Reply         Enumer           1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1110								
1113         Sender-Visibility         Enumer           1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1111	Delivery-Report	Enumer						
1114         Service-Key         UTF8Str           1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1112	Read-Reply	Enumer						
1115         Billing-Information         UTF8Str           1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1113	Sender-Visibility	Enumer						
1116         Status         Group           1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1114	Service-Key	UTF8Str						
1117         Status-Code         UTF8Str           1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1115	Billing-Information	UTF8Str						
1118         Status-Text         UTF8Str           Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140         32.299 [5]	1116	Status	Group						
Note: The AVP codes from 1119 to 1199 are reserved for TS 29.140  32.299 [5]	1117	Status-Code	UTF8Str						
32.299 [5]	1118	Status-Text	UTF8Str						
	Note: The	e AVP codes from 1119 to 1199 are reserved for TS 29.1	40						
Note: The AVP codes from 1200 to 1299 are reserved for TS 32,299	32.299 [5]								
	Note: The AVP codes from 1200 to 1299 are reserved for TS 32.299								

## 8 Experimental result codes

The Diameter answer messages must carry either Result-Code AVP or Experimental-Result AVP. The values of Result-Code AVP are controlled by IANA. The Experimental-Result AVP is a grouped AVP containing the Vendor-Id AVP and Experimental-Result-Code AVP, thus the experimental result codes are controlled in a vendor-specific manner.

## 8.1 3GPP specific result codes

The 3GPP specific result codes are always transferred in the Experimental-Result AVP, which has the Vendor-Id with value of 3GPP"s vendor identifier. The 3GPP specific result codes shall follow the same classification as defined for the values of Result-Code AVP in IETF RFC 3588 [9]. That means, the result codes are grouped to following ranges:

- 1xxx (Informational)
- 2xxx (Success)
- 4xxx (Transient Failures)
- 5xxx (Permanent Failures)

#### 8.1.1 Informational

The Informational result codes shall use the values from 1001 to 1999 in the Experimental-Result-Code AVP.

Editor"s note: No informational result codes have been yet defined in 3GPP.

#### 8.1.2 Success

The Success result codes shall use the values from 2001 to 2999 in the Experimental-Result-Code AVP. The reserved 3GPP specific Success result codes are presented in the following table.

Table 8.1.2: 3GPP specific Success result codes

Experimental Result Code	Result text	Specified in the TS			
2001	DIAMETER_FIRST_REGISTRATION				
2002	DIAMETER_SUBSEQUENT_REGISTRATION				
2003	2003 DIAMETER_UNREGISTERED_SERVICE				
2004	DIAMETER_SUCCESS_SERVER_NAME_NOT_STORED				
2005	DIAMETER_SERVER_SELECTION				
Note: The Expe	Note: The Experimental Result Codes from 2006 to 2020 are reserved for the TS 29.229.				
		29.109 [7]			
Note: The Expe	rimental Result Codes from 2401 to 2420 are reserved for the	TS 29.109.			

#### 8.1.3 Transient Failures

The Transient Failure result codes shall use the values from 4001 to 4999 in the Experimental-Result-Code AVP. The reserved 3GPP specific Transient Failure result codes are presented in the following table.

Table 8.1.3: 3GPP specific Transient Failure result codes

Experimental Result Code						
4100	4100 DIAMETER_USER_DATA_NOT_AVAILABLE 20,220,141					
4101	DIAMETER_PRIOR_UPDATE_IN_PROGRESS	29.329 [4]				
Note: The Exper	rimental Result Codes from 4102 to 4120 are reserved for the T	TS 29.329.				
		32.299 [5]				
Note: The Experimental Result Codes from 41xx to 41yy are reserved for the TS 32.299.						

#### 8.1.4 Permanent Failures

The Permanent Failure result codes shall use the values from 5001 to 5999 in the Experimental-Result-Code AVP. The reserved 3GPP specific Permanent Failure result codes are presented in the following table.

Table 8.1.4: 3GPP specific Permanent Failure result codes

Experimental Result Code	Result text	Specified in the TS		
5001	DIAMETER_ERROR_USER_UNKNOWN			
5002	DIAMETER ERROR IDENTITIES DONT MATCH			
5003	DIAMETER_ERROR_IDENTITY_NOT_REGISTERED			
5004	DIAMETER_ERROR_ROAMING_NOT_ALLOWED			
5005	DIAMETER_ERROR_IDENTITY_ALREADY_REGISTERED			
5006	DIAMETER_ERROR_AUTH_SCHEME_NOT_SUPPORTED	29.229 [2]		
5007	DIAMETER_ERROR_IN_ASSIGNMENT_TYPE	29.229 [2]		
5008	DIAMETER_ERROR_TOO_MUCH_DATA			
5009	DIAMETER_ERROR_NOT_SUPPORTED_USER_DATA			
5010	unassigned			
5011	DIAMETER_ERROR_FEATURE_UNSUPPORTED			
Note: The Exper	rimental Result Codes from 5012 to 5020 are reserved for the T			
N ( TI F	: I.D I.O. I	32.299 [5]		
	rimental Result Codes from 5021 to 5040 are reserved for the TS	S 32.299.		
5041	DIAMETER_ERROR_USER_NO_WLAN_SUBSCRIPTION			
5042	DIAMETER_ERROR_W-APN_UNUSED_BY_USER			
5043	DIAMETER_ERROR_NO_ACCESS_INDEPENDENT_SUBSC	29.234 [6]		
	RIPTION			
	DIAMETER_ERROR_USER_NO_W-APN_SUBSCRIPTION			
	rimental Result Codes from 5041 to 5060 are reserved for the TS	S 29.234.		
	INVALID_SERVICE_INFORMATION	29.209 [8],		
	FILTER_RESTRICTIONS	29.211 [17]		
Note: The Exper	rimental Result Codes from 5063 to 5080 are reserved for TS 29	9.209 and TS 29.211.		
5100	DIAMETER_ERROR_USER_DATA_NOT_RECOGNIZED			
5101	DIAMETER_ERROR_OPERATION_NOT_ALLOWED			
5102	DIAMETER ERROR USER DATA CANNOT BE READ			
5103	DIAMETER_ERROR_USER_DATA_CANNOT_BE_MODIFIED	29.329 [4]		
5104	DIAMETER_ERROR_USER_DATA_CANNOT_BE_NOTIFIED			
5104	DIAMETER_ERROR_USER_DATA_CANNOT_BE_NOTIFIED  DIAMETER_ERROR_TRANSPARENT_DATA			
5105	OUT_OF_SYNC			
Note: The Even	rimental Result Codes from 5106 to 5119 are reserved for the T	2 20 220		
		3 29.329.		
5120	DIAMETER_ERROR_START_INDICATION			
5121	DIAMETER_ERROR_STOP_INDICATION	00 004 [40]		
5122	DIAMETER_ERROR_UNKNOWN_MBMS_BEARER_SERVIC E	29.061 [13]		
5123	DIAMETER_ERROR_SERVICE_AREA			
Note: The Experimental Result Codes from 5124 to 5139 are reserved for the TS 29.061				
5140	DIAMETER_ERROR_INITIAL_PARAMETERS			
5141	DIAMETER_ERROR_TRIGGER_EVENT	29.210 [15]		
	rimental Result Codes from 5142 to 5159 are reserved for the T	S 29.210.		
		29.109 [7]		
Note: The Evne	rimental Result Codes from 5400 to 5419 are reserved for the T			

# Annex A (informative): Assignment of the Diameter codes and identifiers in 3GPP

This annex defines the recommended assignment procedure of Diameter codes and identifiers within the 3GPP.

## A.1 Application identifiers

If a working group detects it will require a new application identifier, it should contact the 3GPP TSG-CN WG 4 via a Liaison Statement. The LS shall contain the name of the Diameter application and a reference to the corresponding 3GPP TS. The 3GPP TSG-CN WG 4 will then request the application identifier from IANA. When the application identifier is received, the corresponding working group will be informed by 3GPP TSG-CN WG 4 and the table 4.1 in this specification will be updated.

According to RFC 3588 the creation of a new application should be avoided if at all possible and therefore it is recommended to use the existing application identifiers whenever possible.

#### A.2 Command codes

If a working group detects there is a need for a new command code(s) from the 3GPP"s range, it should contact the 3GPP TSG-CN WG 4 via an LS. The LS shall contain the reference to the 3GPP TS, which specifies the command(s). The 3GPP TSG-CN WG 4 will inform the assigned command code(s) to the corresponding working group and the table 5.1 in this specification will be updated.

It should be noted that the standard command codes allocated for 3GPP are scarce resource and getting new ones would require IETF specification work to be done. Therefore it is recommended to use the existing command codes whenever possible.

## A.3 AVP codes

If a working group detects a Diameter application needs new 3GPP specific AVP codes, it should contact the 3GPP TSG-CN WG 4 via an LS. The LS shall contain the name of the Diameter application and a reference to the corresponding 3GPP TS. The 3GPP TSG-CN WG 4 will allocate a range of 100 AVP codes for the application. The range will be informed to the corresponding working group and the table 7.1 will be updated in this specification to show the reserved range. The working group can use the allocated range as a working assumption when defining the actual AVPs.

When the corresponding working group has specified the AVPs, and the specification has been approved and is under CR control, it should inform the AVPs to the 3GPP TSG-CN WG 4 via an LS. The LS should list the used AVP codes in the form of the table 7.1.

If there will be defined new AVPs for a Diameter application through the CR procedure, the assigned AVP range can be used, but the 3GPP TSG-CN WG 4 should be also informed about the new AVP codes via an LS.

Re-using of the existing AVPs is recommended, but special attention should be paid on the use of enumerated AVPs. Defining new values for an enumerated AVP should be agreed case by case with the working group responsible of the particular enumerated AVP. 3GPP TSG-CN WG 4 shall be informed via an LS about the new values assigned to the enumerated AVP.

## A.4 Result codes

If a working group detects a Diameter application needs new 3GPP specific result codes, it should contact the 3GPP TSG-CN WG 4 via an LS. The LS shall contain the name of the Diameter application and a reference to the corresponding 3GPP TS. The 3GPP TSG-CN WG 4 will allocate a range of 20 result codes from each required result

code group for the application. The ranges will be informed to the corresponding working group and the tables in the chapter 8 of this specification will be updated to show the reserved ranges. The working group can use the allocated ranges as a working assumption when defining the actual result codes.

When the corresponding working group has specified the result codes, and the specification has been approved and is under CR control, it should convey the codes to the 3GPP TSG-CN WG 4 via an LS. The LS should list the used result codes in the form of the tables in chapter 8.

If there will be defined new result codes for a Diameter application through the CR procedure, the assigned result code ranges can be used, but the 3GPP TSG-CN WG 4 should be also informed about the new result codes via an LS.

Re-using of the existing result codes is recommended.

# Annex B (informative): Change history

	Change history						
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2004-06	CN#24	NP-040292			Version 2.0.0 presented for information and approval	2.0.0	6.0.0
2004-09	CN#25	NP-040401	001		Correction of Charging application reference	6.0.0	6.1.0
2004-09	CN#25	NP-040401	002		Correction of the Application-Id code	6.0.0	6.1.0
2004-09	CN#25	NP-040401	003		Removal of User Data Request Type AVP	6.0.0	6.1.0
2004-09	CN#25	NP-040412	004	1	Re-numbering of 3GPP specific AVP codes.	6.0.0	6.1.0
2004-12	CN#26	NP-040579	006		Inclusion of missing Cx AVPs	6.1.0	6.2.0
2004-12	CN#26	NP-040580	007	1	Reservation of command code 310	6.1.0	6.2.0
2004-12	CN#26	NP-040579	009	1	Addition of Gmb interface	6.1.0	6.2.0
2004-12	CN#26	NP-040600	010	2	Documenting the Reuse of the 3GPP specific application identifier of Ro for Re on the Charging Interfaces	6.1.0	6.2.0
2004-12	CN#26	NP-040579	011		Gq interface allocations	6.1.0	6.2.0
2004-12	CN#26	NP-040579	012		Addition of Gx interface	6.1.0	6.2.0
2005-03	CN#27	NP-050047	040	1	WLAN Diameter AVP and result codes	6.2.0	6.3.0
		NP-050039	043		Allocations for Gx interface		
		NP-050039	045		Allocations for Gmb interface		
		NP-050039	046		Allocations for MMS, MM10 Interface		
2005-06	CT#28	CP-050088	0050		Gx interface allocation correction	6.3.0	6.4.0
		CP-050196	0051	1	Addition of Maximum-Number-Accesses AVP		
2005-09	CT#29	CP-050440	0052	1	Private identities on the Cx	6.4.0	6.5.0
		CP-050310	0053		Addition of Pr reference point to TS 29.230		
		CP-050310	0054		Error code cleanup		
		CP-050310	0056		Addition of Rx ref. point and renaming of Experimental Result Codes		
2005-12	CT#30	CP-050610	0061	1	New AVPs for WLAN	6.5.0	6.6.0
		CP-050612	0062		Additional Gmb AVP Allocation		
		CP-050612	0064		Reservation of AVP codes for 32.299		

## History

Document history		
V6.2.0	December 2004	Publication
V6.3.0	March 2005	Publication
V6.4.0	June 2005	Publication
V6.5.0	September 2005	Publication
V6.6.0	December 2005	Publication